

Claims

- Sub-B1* → 5
1. A method for the reduction of soluble aluminum species in an evaporated salt alkali metal halide brine containing up to 500 ppb aluminum species to provide a brine feedstock suitable for use in a chlor-alkali membrane cell process, said method comprising:-
- (a) treating said brine with a magnesium salt in an amount to provide a Mg to Al molar ratio selected from 5 - 20 to 1 and at a Mg concentration selected from 0.5 - ~~10~~⁵ ppm, and sufficient alkali metal hydroxide to provide an excess alkalinity concentration of between 0.1 - 0.5 g/L alkali metal hydroxide to effect precipitation of a magnesium aluminum hydroxide complex; and
- (b) removing said complex to provide said brine feedstock.
- a* 10
2. A method as defined in claim 1 wherein said Mg to Al molar ratio is about 10:1, said Mg concentration is between 1 and 5 ppm and said excess alkalinity is about between 0.1 to 0.3 g/L alkali metal hydroxide.
3. A method as defined in claim 1 wherein said brine, said magnesium salt and said alkali metal hydroxide are subjected to vigorous mixing.
4. A method as defined in claim 1 wherein said brine is treated with said magnesium salt prior to treatment with said alkali metal hydroxide.
5. A method as defined in claim 1 wherein said magnesium salt and said alkali metal hydroxide are added to said brine as aqueous solutions.
- 25 6. A method as defined in claim 1 wherein said magnesium salt is magnesium chloride and said alkali metal is sodium.
- Sub-A1* → 7.
7. A method as defined in claim 1 further comprising determining the concentration of aluminum species in said feedstock and adjusting the amount of magnesium salt added.
- 30 8. A method as defined in claim 1 wherein said chlor-alkali process is closed-loop.
- Added* →